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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,517	04/20/2001	Patrick S. Meagher	41 EB-1006	4623

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EXAMINER

MANIWANG, JOSEPH R

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/681,517

Applicant(s)

MEAGHER ET AL.

Examiner

Joseph R Maniwang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hart et al. (U.S. Pat. No. 6,005,759), hereinafter referred to as Hart, and further in view of Swales ("Open MODBUS/TCP Specification", Release 1.0, Schneider Electric, 29 Mar 1999), hereinafter referred to as Swales.

Hart disclosed a method and system for monitoring and controlling an electrical distribution network. The system included intelligent electric devices (IEDs), a control computer comprising a server for creating messages intended for the IEDs, and a gateway for communicating with the server and to transmit messages to the IEDs (see column 2, lines 22-67). The server computer communicating with the gateway included various application programs (see column 2, lines 23-28; column 7, lines 16-20). The gateway was configured to transmit messages to at least one IED (see column 4, lines 42-55). The gateway was also configured to extract and encapsulate messages from the server to be delivered to IEDs, and to encapsulate return messages from the IEDs for transmission to the server. Hart disclosed encapsulation as a way to allow the use of different network protocols in the system, made possible by encapsulation of a

message in a first protocol to a second protocol (see column 13, lines 50-65). In this way, Hart disclosed encapsulation of messages in an industry standard format as claimed. Hart specifically disclosed the use of the MODBUS protocol for use between the server and gateway, and the DNP protocol for use between the gateway and IEDs (see column 14, lines 50-65).

While Hart disclosed the use of industry standard protocols for communication in the system, Hart did not specifically disclose the use of TCP/IP for communication of messages in the system.

In a related art of electrical distribution network monitoring and controlling, Swales disclosed the MODBUS/TCP protocol. MODBUS/TCP was disclosed as an automation standard and a variant of the well-known MODBUS family of protocols. The MODBUS/TCP protocol extended the use of the MODBUS protocol to an Intranet/Internet environment by using the TCP/IP protocol through Ethernet gateways (see p. 3, section 2).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Hart and Swales to provide a system for communicating messages between an Ethernet server, gateway, and IEDs using the TCP/IP protocol to encapsulate messages. Both MODBUS and TCP/IP were well-known standards at the time of invention. As stated above, MODBUS/TCP was in essence a combination of the two standard protocols. One of ordinary skill in the art would have been motivated to consider the use of MODBUS/TCP in the invention of

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Hart as it offered improvements such as wider tolerance to network performance changes, security, and greater flexibility (see p. 3, section 2.1).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ratcliff et al. (U.S. Pat. No. 6,078,964) disclosed a computer network including a gateway for facilitating communications between hosts in TCP/IP.

Lee et al. (U.S. Pat. No. 6,490,285) disclosed a multicasting apparatus for broadcasting messages to a plurality of clients connected to a gateway device.

Ackerman et al. (U.S. Pat. No. 5,963,734) disclosed a method and system for controlling and verifying a network of IEDs in a SCADA system.

Bowles et al. (U.S. Pat. No. 6,535,797) disclosed an electrical distribution system and a method for monitoring and controlling the system over a communications network.

Butland et al. (U.S. Pat. No. 6,301,527) disclosed a communications architecture for controlling and managing IEDs using Ethernet servers, gateways, and TCP/IP encapsulation for communication.

Wiese ("The SCADA Gospel: The Edited archives of the SCADA Mailing list", Chapter 3. Protocols, Tek Soft Consulting, 2000) disclosed the possibility of using DNP over TCP/IP.


Beaupre et al. ("Advanced monitoring technologies for substations", 2000 IEEE ESMO - 2000 IEEE 9th International Conference on Transmission and Distribution Construction, Operation and Live-Line Maintenance Proceedings. 8-12 Oct. 2000) disclosed more advanced control system architecture using Ethernet and Internet TCP/IP.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R Maniwang whose telephone number is (703) 305-3179. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A Cuchlinski can be reached on (703)308-3873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JM


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